

WHAT IS CLAIMED IS:

1. A printhead assembly comprising:  
a plurality of ejection elements, each of the ejection elements configured to cause fluid to be ejected when the ejection element is activated; and  
5 a plurality of photosensors, each photosensor coupled to one of the ejection elements, each photosensor configured to cause the ejection element coupled to the photosensor to be activated when the photosensor is illuminated by a light source.
- 10 2. The printhead assembly of claim 1, wherein the photosensors are photodiodes.
3. The printhead assembly of claim 1, wherein the photosensors are phototransistors.
- 15 4. The printhead assembly of claim 1, and further comprising a plurality of amplifiers, each photosensor being coupled to one of the ejection elements via one of the amplifiers.
- 20 5. The printhead assembly of claim 4, wherein each amplifier comprises a field effect transistor (FET).
6. The printhead assembly of claim 4, wherein each amplifier comprises a first and a second FET, each FET including a gate, a source, and a drain.

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7. The printhead assembly of claim 6, wherein each amplifier further comprises a latch, and wherein the latch of each amplifier is coupled between one of the photosensors and the gate of the first FET of the amplifier, and wherein the first FET of each amplifier is configured to be turned on when the  
5 photosensor coupled to the first FET via the latch is illuminated by the light source.
8. The printhead assembly of claim 7, wherein the second FET of each amplifier is coupled to the first FET of the amplifier and to one of the ejection  
10 elements, the second FET of each amplifier configured to provide a drive signal for activating the ejectionelement coupled to the second FET when the first FET of the amplifier is turned on.
9. The printhead assembly of claim 1, wherein the plurality of printhead  
15 fluid ejection elements are formed on a glass substrate.
10. The printhead assembly of claim 1, wherein the ejection elements are thermal inkjet elements.
- 20 11. The printhead assembly of claim 1, wherein the ejection elements are piezoelectric inkjet elements.
12. The printhead assembly of claim 1, wherein the plurality of ejection elements are organized into four page-wide-arrays of ejection elements.  
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13. The printhead assembly of claim 1, wherein the printhead assembly is a page-wide-array printhead assembly.
14. The printhead assembly of claim 1, wherein each photosensor coupled to  
30 one of the ejection elements is positioned substantially adjacent to the ejection element that it is coupled to.

15. A replaceable printer component comprising:  
an array of fluid ejection elements, each of the fluid ejection elements  
configured to cause fluid to be ejected when the fluid ejection element is  
5 activated; and  
optical activation means for activating the fluid ejection elements based  
on a received light beam.
16. The replaceable printer component of claim 15, wherein the optical  
10 activation means comprises a plurality of photodiodes, with each photodiode  
being coupled to one of the fluid ejection elements.
17. The replaceable printer component of claim 15, wherein the optical  
activation means comprises a plurality of phototransistors, with each  
15 phototransistor being coupled to one of the fluid ejection elements.
18. The replaceable printer component of claim 15, wherein the optical  
activation means comprises a plurality of photosensors and amplification means  
coupled to the plurality of photosensors for outputting drive signals to the fluid  
20 ejection elements based on outputs of the photosensors.
19. The replaceable printer component of claim 15, wherein the array of fluid  
ejection elements is a page-wide-array of fluid ejection elements.
20. A method of firing fluid ejection elements of a printhead assembly, each  
of the fluid ejection elements causing fluid to be ejected when activated, the  
method comprising:

providing a plurality of photosensors, each photosensor coupled to a respective one of the fluid ejection elements;

generating activation signals when the photosensors are illuminated by a light source; and

5        activating ejection elements in the printhead assembly based on the activation signals, thereby causing fluid to be ejected by the activated fluid ejection elements.

21.    The method of claim 20, and further comprising:

10        latching the activation signals;

amplifying the latched activation signals; and

activating fluid ejection elements in the printhead assembly based on the amplified activation signals.

15    22.    The method of claim 20, wherein the printhead assembly is a page-wide-array printhead assembly.

23.    An activation element of a fluid ejection device comprising:

an ejection element that causes fluid to be ejected from an associated

20    nozzle chamber when activated; and

a photosensor coupled to the ejection element, the photosensor configured to cause the ejection element coupled to the photosensor to be activated when the photosensor is illuminated by a light source.

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24. A fluid ejection assembly comprising:

an array of fluid ejection elements, each of the fluid ejection elements causing fluid to be ejected from an associated nozzle chamber when activated; and

5           optical activation means for activating the fluid ejection elements based on a received light beam.

25. A method of firing fluid from a fluid ejection assembly having a fluid ejection element and a photosensor coupled to the fluid ejection element, the

10       method comprising:

generating an activation signal when the photosensor is illuminated by a light source; and

          activating the fluid ejection element in the fluid ejection assembly based on the activation signal, thereby causing fluid to be ejected by the activated fluid  
15       ejection element.